

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

(12) UK Patent Application (19) GB (11) 2 161 528 A

(43) Application published 15 Jan 1986

(21) Application No 8417984

(22) Date of filing 14 Jul 1984

(71) Applicant

Duraflex Products Limited (United Kingdom),
Pillar House, 113/115 Bath Road, Cheltenham, Glos
GL53 7LS

(72) Inventor

Phillip Raymond Watts

(74) Agent and/or Address for Service

A J Brodigan,
RTZ Services Limited, York House, Bond Street,
Bristol BS1 3PE

(51) INT CL
E06C 7/48

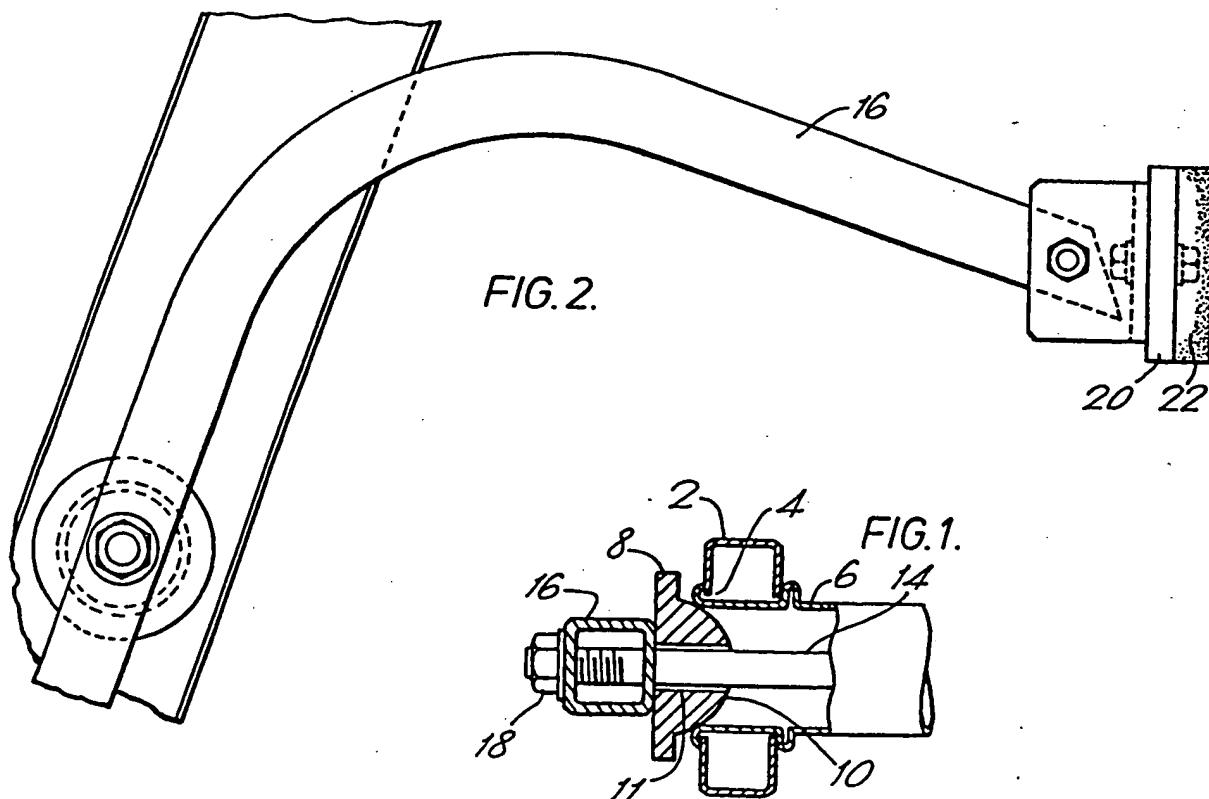
(52) Domestic classification
E1S LW1

(56) Documents cited
None

(58) Field of search
E1S

(54) Ladder brace

(57) A ladder brace which can be releasably attached to a range of metal ladders includes two mounting members 8 having seats 10 adapted to engage the annular ends of a variety of tubular rung arms 16 of the brace. The seats 10 can be secured by a tie rod 14 passing through a tubular rung 6, and through the each stile 2 of the ladder.



GB 2 161 528 A

2161528

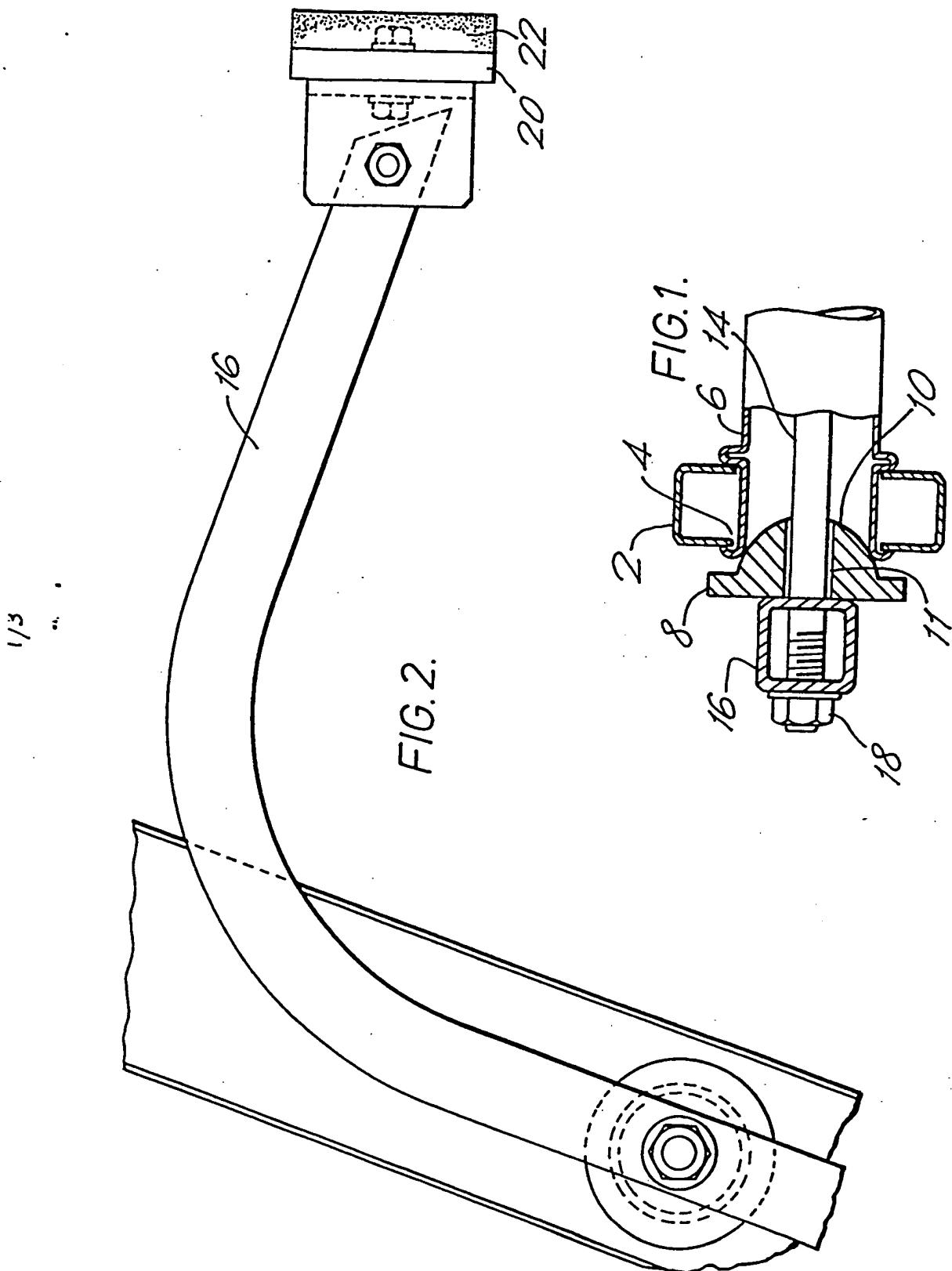


FIG.3.

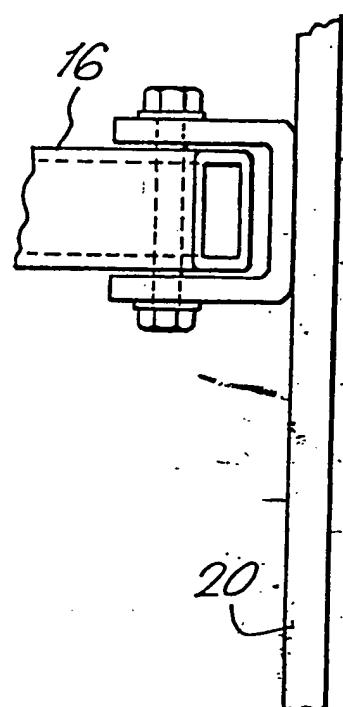
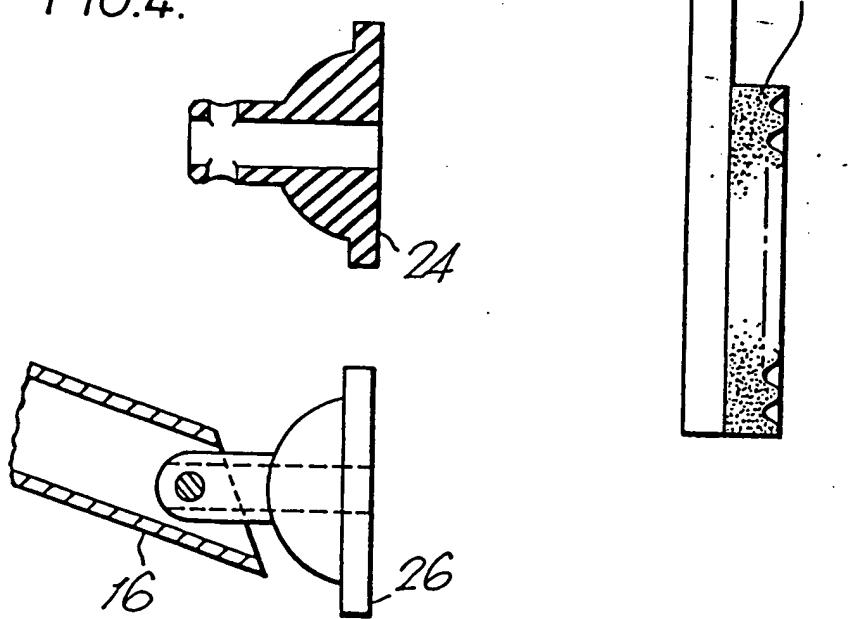


FIG.4.



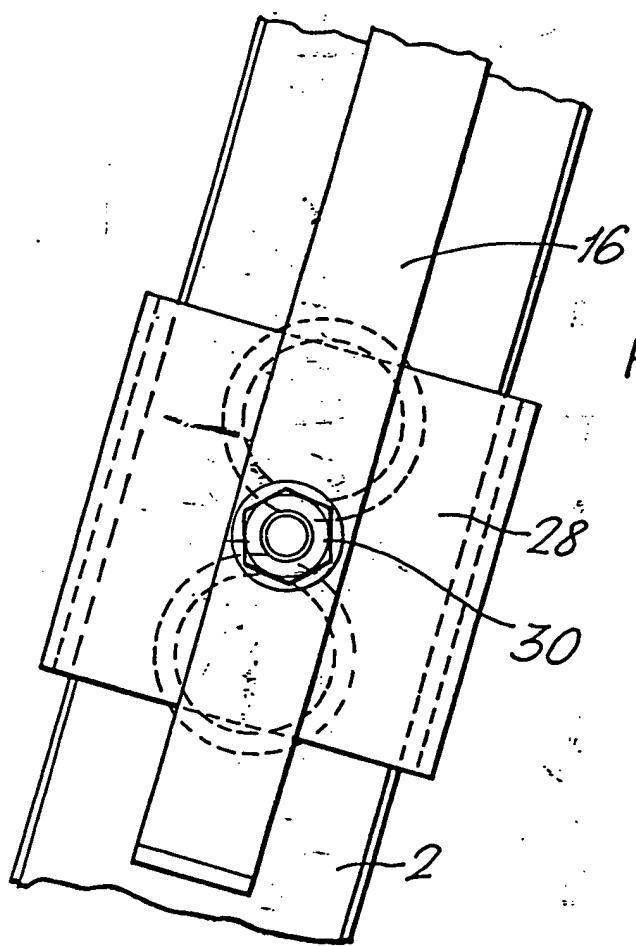


FIG. 5.

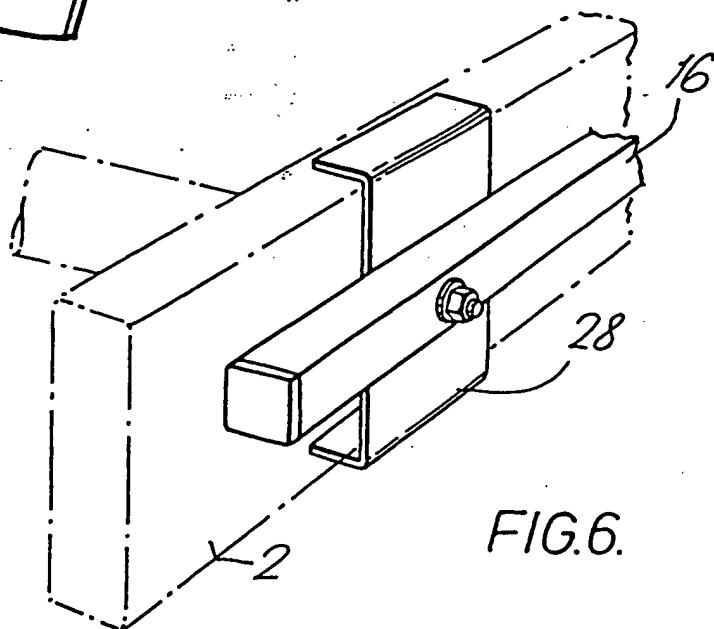


FIG. 6.

SPECIFICATION

Ladder brace

5 This invention relates to a ladder brace for supporting the upper end portion of a ladder when in use.

10 Conventional ladder braces suffer from the disadvantage that they are generally adapted for use with a specific type or size of ladder. Thus, for many ladders in general use, a suitable ladder brace is not readily available.

15 It is an object of this invention to provide a ladder brace which is usable with a greater range of ladders, particularly light alloy ladders having tubular rungs, than has been possible hitherto.

This invention consists in a ladder brace as claimed in Claim 1 hereof.

20 The majority of light alloy ladders have tubular rungs of circular oval or D shaped cross-section and preferably each seat is of spherical or ovoidal form to facilitate secure seating on the correspondingly shaped annular ends of such rungs.

The each mounting member preferably has a bore passing axially through the seat to receive a tie member such as a long bolt, adapted to extend through the tubular rung 30 whereby the seats may be mutually urged into seating engagement with the respective annular ends of the tubular rung. The tie member may be further used to attach each arm to its respective mounting member.

35 Each arm may be provided with detente means disposed and arranged to engage, in use, with the adjacent stile to secure the arm against pivotal movement about the axis of the tubular rung. In order to secure mechanical advantage, the detente means is preferably located on the arm remote from the axis of the tubular rung.

40 The invention will be further described by way of example only with reference to the accompanying drawings in which

Figure 1 is a partial cross section of a ladder brace attached to an aluminium alloy ladder;

45 Figure 2 is a side view of arm member of the ladder brace shown in Fig. 1, and provided with a rest bar for resting the arm on a supporting surface.

50 Figure 3 is a partial view of the direction II of Fig. 2.

55 Figure 4 shows alternative forms of rest pad for attachment to the rest bar shown in Figure;

60 Figure 5 is a side view of the lower end portion of one arm of a ladder brace attached to a ladder

65 Figures 6 is a prospective view of the lower end portion of the arm illustrated in Fig. 5.

Referring to Fig. 1 a tubular rung 6 of an aluminium alloy ladder extends through and

shown. A mounting member 8 has a spherical seat portion 10 and a bore 11 formed along the axis of the seat portion 10. One arm (16) of the ladder brace is attached to the mounting member 8 by means of a tie rod 14 which passes through the tubular rung 6 and the bore 11. An identical arrangement is provided at the other end of the rung. The ladder brace is releasably attached to the ladder by means

70 of the tie rod 14. The form and arrangement of each arm 16 of the ladder brace may be more clearly seen from Figs. 2 and 3. The arms (16) each carry a rest bars (2) which project outwardly from each stile in the direction of the rung axis. The opposed end portions of rest bar 20 are provided with a rubber pad 22, as shown in Figs. 2 and 3 or alternatively with a pivotally attached bearing pad 24 or 26 as shown in Fig. 4.

75 Referring to Figs. 5 and 6, the lower end portion of each arm 16 has a channel shaped bracket 28 securely attached thereto by bolt 30. The bracket 28 receives a portion of the adjacent stile 2 to secure the arm 16 against 80 rotation about the axis which passes through the seats 10.

CLAIMS

1. A ladder brace for supporting the upper portion of a ladder in use comprising a support arm for mounting on each stile and a mounting member for each support arm, the mounting members each having a seat adapted to engage the opposed annular ends 95 of a tubular rung, means for retaining the seats in seating engagement therewith, and means for securing each support arm against rotation about the rung axis.

2. A ladder brace as claimed in Claim 1 in which each seat is of spherical or ovoidal form to engage circular, oval or D shaped annular ends of a tubular rung.

3. A ladder brace as claimed in Claim 1 or 2 in which each mounting member is provided with a bore passing axially through the seat to receive a tie member adapted to extend through the tubular rung whereby the seats may be mutually urged into seating engagement with the respective annular ends 110 of the tubular rung.

4. A ladder brace as claimed in any preceding Claim in which each arm is provided with detente means disposed and arranged to engage in use with the adjacent stile to secure the arm against pivotal movement about the axis of the rung.

5. A ladder brace as claimed in Claim 4 in which the detente means comprises a channel shaped member fixed to the arm to receive 120 therein a portion of the adjacent stile.

6. A ladder brace as claimed in any preceding Claim in which each arm carries a rest member extending in the direction of the tubular rung axis outwardly from each stile.

which the opposed end portions of the rest member are pivotally attached to frictional bearing members for resting on a supporting surface.

5 8. A ladder brace, substantially as described with reference to the accompanying drawings.

Printed in the United Kingdom for
Her Majesty's Stationery Office, Dd 8818935, 1986, 4235.
Published at The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.